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Perceived Benefits of Digital Payments in Tanzania

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ABSTRACT

In Tanzania, efforts to influence the adoption of digital payments are enormous. However, there is still low adoption rate in Tanzania. This study argues that the low adoption rate is mainly driven by the fact that, to a great extent, these efforts do not accommodate the perception of customers on the potential benefits of digital payments. This study sought to analyse the consumer perception on potential benefits of digital payments in Tanzania. We employed a hierarchical multiple regression in analysing data collected from 261 respondents from the consumer consultative councils in Tanzania. We find that the major categories of perceived benefits of adopting digital payments in Tanzania are perceived positive customer experience, perceived enhanced security and privacy, and perceived low costs associated with adopting digital payments. We also find that the addition of consumer perception on sufficient policies, forged collaborations, and an effective regulatory framework, improves the prediction of readiness to rely heavily on digital payments than cash, over and above other revealed benefits. The policymakers and relevant practitioners need to cooperate in designing and implementing workable approaches that reflect the interests of the stakeholders for promoting the widespread adoption of digital payments in Tanzania.

Keywords: Digital Payment Adoption, Consumer Perception, Potential Benefits, Digital Payments, Tanzania
JEL Classifications: D12, E42

1. INTRODUCTION

There has been a noteworthy popularity of digital payments in various economies around the globe. Modgil et al. (2022) confirm that the growth of digital payments has been fuelled by increased smartphone usage and the COVID-19 pandemic. Bhatia et al. (2023) support this assertion that during the COVID-19 pandemic, the use of digital payments increased and they provided convenience. It is worthwhile to affirm that modern technology offers convenience, and saves money and time (Frączek and Urbanek, 2021). Through modern technology, particularly the innovation in payment technology, the interaction of people and their consumer behaviours is greatly influenced (Horne and Collins, 2023). This influence is also supported by advanced digital payment infrastructures. Ng et al. (2021) claim that through advanced infrastructures, digital payments help the developing countries to reach the financially excluded population. Therefore, digital payments are regarded as appropriate mechanisms to advance financial inclusion (Srouji and Torre, 2022).

Digital payment can refer to the "use of hardware facilities, such as computers and smart devices, as well as digital technology means, such as communication technology, artificial intelligence, and information security, to cover various life scenarios, such as online shopping, offline consumption, daily consumption, and market entrepreneurship" (Wu et al., 2023, p. 4). Its significance in the economy is apparent. A cashless economy reduces all financial crimes (Raj et al., 2021). Through digital payments, the informal economy (Srouji and Torre, 2022) and the shadow economy are shrunk (Khando et al., 2023; Raya and Vargas, 2022). Therefore, in developing economies, digital payments can help in alleviating poverty particularly through reduction of corruption and prevention of the leakage of public funds (Setor et al., 2021) and ultimately increase government revenues (Khando et al., 2023; Setor et al., 2021) since the government

is able to track transactions and make informed decisions (Raya and Vargas, 2022).

Although the Government of the United Republic of Tanzania is investing in developing and managing mechanisms that can address challenges pertaining to cyber security, Internet accessibility, regulatory, and digital literacy, there is little adoption of digital payments in Tanzania. This study argues that there should be deliberate efforts to reveal the benefits of using digital payments over traditional cash payments to consumers. These benefits can be related to digital payments' ability to relieve customers from the costs related to handling cash (Khando et al., 2023) and from making physical visit, holding money, physically transferring money, and carrying cards (Hasan and Gupta, 2020). Nevertheless, the efforts to reveal the digital payment benefits can yield fruitful results if the government and policy makers understand how consumers perceive the potential benefits of digital payments. This is because; the policy development initiatives should focus on devising and implementing digital payment policies that are beneficial to the users (Krishna et al., 2023). This study seeks to analyse the consumer perception on potential benefits of digital payments in Tanzania.

This study is of paramount importance in advancing the adoption of digital payments in a developing economy like Tanzania. It adds to the body of knowledge about the benefits of using digital payments and provides an avenue for enhancing policy development initiatives that seek to create a workable digital financial ecosystem. The development of a better digital financial ecosystem is key to enhancing the effectiveness of digital payments (Krishna et al., 2023). This study also paves way for digital payment practitioners, key players, and other relevant stakeholders to devise and implement mechanisms that can help improve the policy development initiatives in driving a cashless economy. Panda et al. (2022) conclude that the policy development initiatives on digital payment should focus on economic and social factors as well as their changing situations.

2. LITERATURE REVIEW

2.1. Technological Progress

The advancement of technology plays a vital role in the development of an accessible and inclusive digital payment ecosystem (Ferrari, 2022). Digital payments can be facilitated through advanced technologies such as "AI, robotics, blockchain, cloud and mobile technologies" (Ferrari, 2022, p. 12). For example, the development of artificial intelligence can drive an increased productivity (Alhosani and Alhashmi, 2024). Likewise, the automation and robotics is expected to play a vital role in improving digital payment compliance and in enhancing the relationship with consumers (Ferrari, 2022). These technologies are also expected to significantly improve efficiency. In their study, Yang et al. (2021) suggest that e-wallet providers should invest in latest technologies that provide efficiency. This is due to the fact that digital payment technologies "are meant to support faster, cheaper, safer means of payments and enable frictionless interactions with financial incumbents" (Ferrari, 2022, p. 12). Ng et al. (2021) add that, digital payment technologies offer speed to consumers and businesses when making digital payments. They also help businesses to understand their consumer behaviours, thus ultimately increasing sales and profitability (Horne and Collins, 2023). Therefore, since technological progress is irresistible and inevitable, governments have a role to ensure that they establish enabling environment for new technologies to flourish (Ferrari, 2022).

2.2. Capable Digital Payment Systems

An enhanced digital payment ecosystem requires capable digital payment systems. Ng et al. (2021) advocate for the creation of high-functionality digital payment capabilities. These capabilities are especially important in a new era of digital payment systems (DPS 2.0) that "enables cashless, virtual, automated, faster, flexible, and interoperable transactions aided by Web 2.0/Web 3.0, machine technology (e.g., POS, AI), mobile devices, the metaverse, and computer-based systems/databases (e.g., blockchain) to facilitate monetary transfers between multiple entities" (Anaza et al., 2022, p. 694). Such monetary transfers between the business, customer, and financial institution, should be supported and linked through payment gateways (Modgil et al., 2022). Therefore, government institutions should invest in necessary digital payment infrastructures in order to enable digital payment users to seamlessly make digital transactions (Aurazo and Vega, 2021).

To a great extent, most of the advanced digital payment systems do not require direct human involvement (Anaza et al., 2022). These systems can support both mobile proximity and mobile remote payments. Mobile proximity payments are "mobile payments in which the payer and the payee are in the same location, and communication between their devices takes place through a proximity technology" (Cwynar et al., 2022, p. 643). On the other hand, Cwynar et al. (2022, p. 643) refer mobile remote payments to the situation "when a payment is made from a distance, without the payer and payee being present in the same physical location". Therefore, the ability to support mobile proximity and mobile remote payments can define the quality of an advanced digital payment system. This is because; "the key interest of any entrepreneur in developing their digital business today is that one needs not to be physically present while doing business" (Modgil et al., 2022, p. 11). Therefore, digital payment service providers should establish capable and secure channels for conducting digital transactions, irrespective of geographical or time limitations (Bhuiyan et al., 2024). Ultimately, the digital divide will be bridged due to the fact that digital payment devices such as smartphones are ever-present even in rural areas (Rahman et al., 2020).

Businesses can improve digital payments by focusing on the quality of system, information, and service (Ramayanti et al., 2024). Digital payment service providers have to ensure that new features are constantly added in order to provide user-friendly products particularly in terms of convenience and ease of use (Bhatia et al., 2023). This is because; the adoption of digital payment systems is influenced by ease of use (Dzogbenuku et al., 2021; Bhuiyan et al., 2024). For example, in their study, Yang et al. (2021) reveal that perceived ease of use is a key driver

of using an e-wallet. Therefore, there is a need to develop digital payment applications that provide a user-friendly and easily navigable interface (Bhuiyan et al., 2024). For example, easily understood mobile apps can be developed in order to accommodate all types of consumers (Rahman et al., 2020). In their study, Manrai et al. (2021) reveal that, easy application software and which involves fewer steps, plays a vital role in the adoption of digital payments among rural women. Similarly, Santosa et al. (2021) add that, a more user-friendly interface can be created in order to accommodate the needs of different groups of people including the elderly. Likewise, as revealed by Aurazo and Vega (2021), digital payment service providers may develop appropriate digital payment systems that accommodate the needs and preferences of small merchants.

2.3. Competitive Digital Payment Infrastructures

In order to realise the adoption of digital payments, there is a need for "a distinct set of socio-economic, institutional and technological pre-requisites that are not easily replicated" (Srouji and Torre, 2022, p. 10). This is to say, digital payments can be adopted when there are facilitating conditions (Rahman et al., 2020). Manrai et al. (2021) argue that facilitating conditions such as training, promotion campaigns, and supporting facilities and sites, play a vital role in the adoption of digital payments. Through a friendly digital payment environment, the participation of more individuals in the financial ecosystem increases. Therefore, policymakers and relevant institutions should develop and implement plans that seek to integrate vulnerable populations into the financial ecosystem (Horne and Collins, 2023).

Poor adoption of digital payments has greatly been influenced by issues pertaining to network/internet connections (Panda et al., 2022). Hence, the adoption of digital payment is more likely among people with Internet access (Aurazo and Vega, 2021). Since poor internet connection may be experienced when using digital payments (Musyaffi et al., 2022), the government needs to invest in reliable internet connection particularly in the rural areas in order to stimulate the establishment of relevant digital infrastructure (Bhuiyan et al., 2024). This is because; the adoption of digital payment is more likely among people living in areas with good financial system presence (Aurazo and Vega, 2021). In their study, Frączek and Urbanek (2021) concluded that lack of well-developed banking infrastructure hinders the implementation of digital payments. Therefore, businesses should invest in the creation of conditions that can address digital payment risks (Bapat and Khandelwal, 2023).

Digital payment adoption depends on the availability of appropriate ICT infrastructure which enables digital payment customers to open and manage their transaction accounts particularly in rural areas (Allen et al., 2022). In this regard, businesses need to invest in technological infrastructure in order to generate more revenues (Adhikary et al., 2021). Likewise, governments need to invest in ICT infrastructure in order to advance the adoption and usage of digital payments (Allen et al., 2022). The investment in ICT infrastructure should also focus on promoting an access to digital technology. Miglionico (2022, p. 182) asserts that "access to digital technology supports financial inclusion and data sharing, which means banks provide financial services at affordable costs to disadvantaged customers".

Nevertheless, digital payment infrastructures should be competitive. Countries should "consider what unique resources they have access to in order to make the deployment of new cashless payment solutions beneficial for those who seek to obtain the desired outcomes" (Ng et al., 2021, p. 16). Therefore, technology infrastructure and institutional environment should be the main focus areas in the policy development process (Panda et al., 2022). These policy initiatives should also focus on digital payment devices. Mobile devices are expected to be essential devices in digital payments (Ferrari, 2022) especially in environments with low debit card penetration (Allen et al., 2022).

Since poor adoption of digital payments has greatly been influenced by smartphone issues (Panda et al., 2022), the digital payment service providers and other relevant stakeholders including the government, should recognise the significance of mobile phones in accessing financial services (Dzogbenuku et al., 2021). Panda et al. (2022) argue that, governments should subsidise digital payment devices such as swipe machines and smartphones. Since using digital payment systems requires additional effort (Musyaffi et al., 2022), without the government support such as tax incentives on digital devices, poor adoption is likely to prevail. These incentives should seek to lower the price of mobile devices. In their study, Bapat and Khandelwal (2023) found that the low price of smartphones drove an increase in digital payment apps. These apps were also influenced by the policy support (Bapat and Khandelwal, 2023).

2.4. Relevance of Digital Financial Literacy

Digital financial literacy is the capabilities to navigate financial services and digital technologies. Digital financial literacy plays a crucial role in empowering individuals to effectively make their digital payments. Therefore, the low financial literacy hinders the implementation of digital payments (Frączek and Urbanek, 2021). Even the preference of cash is mainly driven by the fact that "in countries with high socio-economic inequality, financial literacy tends to be low" (Srouji, 2020, p. 7). In developing economies, digital illiteracy has been one of the key challenges hindering the adoption of digital payments (Setor et al., 2021). Poor adoption of digital payments is influenced by the digital divide particularly the presence of population that lack digital skills or the population in areas which are to a great extent, financially excluded (Gorshkov, 2022). However, "responsible participation in an increasingly cashless world requires appropriate knowledge and the ability to apply this knowledge" (Cwynar et al., 2022, p. 641). Therefore, if consumers have the digital payment knowledge and resources, they are likely to adopt them (Rahman et al., 2020). Ultimately, businesses will also be influenced to invest in digital payment technologies and infrastructures. Darehshiri et al. (2022) assert that, businesses can adopt new digital payment technologies when the society is knowledgeable about the new digital payment systems.

Rahman et al. (2020) refer to the consumer's knowledge and resources as the facilitating conditions for the adoption of digital payments. Therefore, awareness programmes should be prioritised

in digital payment adoption (Panda et al., 2022). Digital payment service providers should ensure that they implement awareness programmes in order to increase the adoption of digital payments (Rahman et al., 2020). Appropriate awareness programmes should be increased in order to influence merchants and customers who are technology antagonist and ignorant to adopt digital payment solutions (Panda et al., 2022). For example, consumers may be educated about digital payment technologies in order to address risks associated with data protection and security (Ferrari, 2022). The knowledge of the technology usage influences the reduction of errors and suitable usage of the digital payment methods and ultimately increasing trust (Manrai et al., 2022).

Digital payment campaigns seeking to educate and raise awareness should focus on older generation (above 40 years). This is because; the adoption of digital payment is more likely among young generation (25–40 years) (Aurazo and Vega, 2021). These campaigns should also focus on people living in rural areas. This is due to the fact that the adoption of digital payment is more likely among people with a formal employment and those living in urban areas (Aurazo and Vega, 2021). Rural women for instance were found to have limited knowledge in operating some applications in their phones. The training on the usage of digital payment devices such as mobile phones can help potential users, particularly rural women to develop trust in digital payments and ultimately adopt them (Manrai et al., 2021).

Public and private institutions should actively engage in policy development initiatives that seek to raise the awareness and promote the benefits of digital payments (Panda et al., 2022). The governments have a role to play in ensuring that financial education is imparted to relevant users in order to influence the usage of digital payments (Raj et al., 2021). Banks and other financial institutions need to implement awareness programmes that seek to impart digital payment knowledge to users particularly on matters pertaining to risk management (Bhuiyan et al., 2024).

2.5. Government Support

Policymakers should develop mechanisms that enable the growth of digital payments (Ferrari, 2022). This growth fosters financial inclusion. Niankara (2023, p. 11) argues that digital payment solutions can be adopted through the implementation of "financial inclusion strategies such as the facilitation of borrowings, savings, credit card ownership, emergency funds access, and electronic payment processing in public and private sectors, as well as the digitalization of utility services' payments". Governments may also foster financial inclusion by providing mechanisms that enable people to easily access financial services (Rahman et al., 2020). They may also foster financial inclusion by establishing appropriate mechanisms that formalise firms and ultimately increase the use of digital payments (Aurazo and Vega, 2021). They also need to raise awareness of digital payment systems in the society in order to enhance the efficiency and productivity of businesses that invest in new digital payment systems and infrastructure (Darehshiri et al., 2022).

The governments have a role to play in ensuring that incentives for digital transactions are provided in order to influence the usage of digital payments (Raj et al., 2021). They may waive taxes to stimulate higher penetration of digital payments (Adhikary et al., 2021). Likewise, governments may provide fiscal incentives such as tax reduction that seek to attract merchants in adopting and using digital payments (Allen et al., 2022). The government may also provide tax incentives to businesses that invest in new digital payment systems and infrastructure (Darehshiri et al., 2022).

Apart from tax incentives, the government should support the development of digital payment solutions including the investment in the development of relevant digital payment infrastructure (Rahman et al., 2020). In this regard, the government should provide the required training and consultation support to businesses that invest in new digital payment systems and infrastructure (Darehshiri et al., 2022). These infrastructures may include those that manage safety issues (Rahman et al., 2020). The businesses that invest in these infrastructures and systems should be given the necessary financial support including an access to lower-rate loans (Darehshiri et al., 2022). The goal is to ensure that governments establish mechanisms that encourage merchants to embrace digital payments (Allen et al., 2022).

However, the government investment and subsidisation of digital payment systems are likely to be fruitless in economies where shadow markets are prevalent (Marmora and Mason, 2021). Efforts should be made to ensure that digital payment mechanisms are well utilised in combating shadow markets. According to Raya and Vargas (2022), by investing in digital payments, the government is able to combat against fraud and tax evasion. This assertion is supported by Raj et al. (2021) who add that a cashless economy reduces tax evasion, illegal transactions, money laundering, black money, counterfeit money, as well as corruption and bribery. Moreover, in their study, Wu et al. (2023, p. 5) concluded that the use of digital payments "reduces the probability of offenses, such as market robbery, cash damage, and counterfeit currency circulation during the transaction process, considerably protecting the fluid capital of rural households and enhancing their development resilience".

In this study we propose that, customers perceive that digital payments are beneficial because they are always improved by the government through sufficient policies. They also perceive that digital payments are beneficial because they are always improved by the government through forged collaborations among digital payment stakeholders. Furthermore, customers perceive that digital payments are beneficial because they are always improved by the government through an effective regulatory framework. Ultimately, the customer's readiness to rely heavily on digital payments than cash (Digital_preference) increases. We define the government support based on the following statements: digital payments are beneficial because they are always improved by the government through sufficient policies (Sufficient_policy); digital payments are beneficial because they are always improved by the government through forged collaborations among digital payment stakeholders (Increased_collaboration); and digital payments are beneficial because they are always improved by the government through an effective regulatory framework (Improved_regulatory).

These statements are used in developing the hypotheses in the subsequent sections.

2.6. Performance Expectancy

Digital payments can be adopted when the consumers' perceived values are realised (Rahman et al., 2020). This claim is supported by Yang et al. (2021) who found that perceived usefulness was a key driver of using an e-wallet. Therefore, digital payments can be adopted when the performance expectancy is realised (Rahman et al., 2020; Manrai et al., 2021). In this regard, digital payment service providers should ensure that their digital payment systems enhance the overall work performance of their consumers (Rahman et al., 2020) and ultimately improve business performance. Through digital payments, businesses are able to expand their customer base (Musyaffi et al., 2022; Khando et al., 2023) and improve both their sales and company image (Musyaffi et al., 2022). This performance is a major driver of consumer's confidence. Bapat and Khandelwal (2023) found that consumer's confidence in digital payment apps influenced commitment and continuance usage intention (Bapat and Khandelwal, 2023).

2.7. Customer Experience

Users are likely to adopt digital payments when they perceive them as beneficial (Bhuiyan et al., 2024). The digital payment benefits may be categorised as financial, social, and product-associated values (Hasan and Gupta, 2020). Customer satisfaction can be driven when these benefits are realised. This is why; Sahi et al. (2021) confirm that digital payments can be adopted when users are satisfied. Through this satisfaction, their purchase habits increase. Raya and Vargas (2022) claim that digital payments can influence purchase habits. It has also been revealed that the purchase habits are partly driven by hedonic motivations (Santo and Marques, 2022). Rahman et al. (2020) found that digital payments can be adopted when there is hedonic motivation. According to Santo and Marques (2022, p. 58), hedonic motivation refers to "consumption behaviour with a view to happiness, fantasy, enjoyment, entertainment and pleasure in the act of purchase". This is why, in their study, Dzogbenuku et al. (2021) concluded that digital payments drive the users' perception of wellbeing.

Digital payment systems should focus on interests and preferences of consumers (Ferrari, 2022). In this regard, businesses should develop digital payment solutions that reflect the needs and preferences of customers (Ramayanti et al., 2024). In their study, Yang et al. (2021) found that lifestyle compatibility particularly when the system is compatible with needs, interests, preferences, and lifestyles of the consumer, is a key driver of using an e-wallet. Thus, digital payment service providers must ensure that they receive feedback from customers in order to understand their preferences, interests, and expectations (Bhatia et al., 2023) and ultimately create an enhanced customer relationship management. This is because; the long-term relationship with customers is the driver of continued use of digital payment systems (Sahi et al., 2021).

Digital payment service providers should develop mechanisms that simplify the user experience (Ramayanti et al., 2024). In this regard, digital payment systems are expected to be user-friendly, and seamless (Ferrari, 2022). They are also expected to offer convenience to consumers and businesses when making digital payments (Ng et al., 2021). In their study, Dzogbenuku et al. (2021) found that the adoption of digital payment systems is influenced by convenience. This is because; digital payments offer convenience (Modgil et al., 2022; Khando et al., 2023; Wu et al., 2023; Horne and Collins, 2023: Mohd Thas Thaker et al., 2023). This convenience translates the capabilities of digital payment technologies. Ferrari (2022) suggests that consumers need advanced technological solutions and they should be enabled to use them. They should also be informed that their digital payment systems are secure. In this regard, digital payment service providers need to create an easy digital payment platform that is secure and safe (Manrai et al., 2022). This information reveals how credible digital payment systems are. According to Manrai et al. (2021), the perceived credibility plays a vital role in the adoption of digital payments.

Customers are likely to adopt digital payments if they trust them (Hasan and Gupta, 2020; Dzogbenuku et al., 2021). The perceived credibility or trust in the digital payment services influences the adoption of digital payments (Manrai et al., 2022). In their study, Yang et al. (2021) found that perceived trust particularly the feeling that the digital payment service is honest and reliable, is a key driver of using an e-wallet. Likewise, Bapat and Khandelwal (2023) found that consumer's confidence in digital payment apps influences trust. Thus, businesses should develop and implement appropriate digital payment strategies that can instil trust in the customer's mind (Manrai et al., 2021). These strategies, if well implemented, they can drive the customer's willingness to consume. In their study, Wu et al. (2023) found that digital payments could enable rural households to increase their consumption willingness.

In this study, we propose that customers expect a positive customer experience to be realised when adopting digital payments in Tanzania. We define a perceived positive customer experience based on the following statements:

- Digital payments are more convenient. They provide convenient customer experience by enabling convenient transactions such as the payment of invoices from anywhere (Customer_Exp1)
- Digital payments can increase accuracy (Customer_Exp2)
- Digital payments can increase scalability - an ability to make and receive digital payments in large volumes (Customer_Exp3)
- Digital payments provide more payment options to the customer (Customer_Exp4)
- Digital payments support remote and hybrid work environments (Customer_Exp5)
- Digital payments provide chances of reaching a larger audience (Customer_Exp6)
- Digital payments provide more distribution channels such as websites and a variety of online sales platforms (Customer_Exp7).

With regard to perceived positive customer experience, this study is therefore seeking to test the following hypotheses:

- Hypothesis 1: A positive relationship exists between perceived

positive customer experience and the customer's readiness to rely heavily on digital payments than cash.

- Hypothesis 2: The addition of Sufficient_policy improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, and Customer_Exp7 alone.
- Hypothesis 3: The addition of Increased_collaboration improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, Customer_Exp7, and Sufficient_policy alone.
- Hypothesis 4: The addition of Improved_regulatory improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, Customer_Exp7, Sufficient_policy, and Increased_collaboration alone.

2.8. Security and Privacy

The adoption of digital payment systems is influenced by security issues (Dzogbenuku et al., 2021; Gorshkov, 2022; Panda et al., 2022). Their adoption can take place when perceived technology security is realised (Rahman et al., 2020). The adoption of digital payments takes place when there is a secure environment (Krishna et al., 2023). Therefore, businesses need to establish the most secure environment for digital payments (Darehshiri et al., 2022).

Digital payment service providers should develop mechanisms that enhance transaction security (Ramayanti et al., 2024). They may opt for biometrics as security in digital transactions (Panetta et al., 2023). Biometrics is likely to be the most preferred authentication technique in digital payments rather than passwords (Ferrari, 2022). Therefore, digital payment service providers have to establish the latest authentication techniques in order to guarantee the required transaction security (Darehshiri et al., 2022). Transaction security can be enhanced through the use of stronger encryption technology (Ramayanti et al., 2024). For example, the consumer's identity may be determined through retinal scanning, fingerprinting, and facial recognition (Anaza et al., 2022). Nevertheless, consumers and employees need to be aware of the evolving security and privacy threats in the digital payment ecosystem. This is why Ramayanti et al. (2024) suggest that the transaction security can be enhanced through training employees in detecting security threats.

Policy development initiatives should focus on prioritising the security and privacy of digital payment users (Krishna et al., 2023). Dzogbenuku et al. (2021) add that the utmost safety and security should be prioritised in the designing of digital payment services. In this regard, digital payment service providers need to ensure that their digital payment systems are secure (Manrai et al., 2022). Their digital payment applications should incorporate robust security measures (Bhuiyan et al., 2024). The policy development initiatives should focus on security measures that promote trust among unsophisticated users without sacrificing efficiency (Krishna et al., 2023). Policy development initiatives should also focus on structuring the supporting infrastructure in order to address privacy issues (Ferrari, 2022).

Consumers should be informed about the use of their personal data (Ferrari, 2022). Mechanisms that ensure the safety of digital payment systems are of paramount importance in addressing the security and privacy concerns of consumers (Anaza et al., 2022). Consumers who feel secure about making digital payments can quickly adopt digital payments (Rahman et al., 2020). This assertion is supported by Hasan and Gupta (2020) who add that customers are likely to adopt digital payments if the risks of security and privacy are addressed. To a great extent, digital payment ecosystems have been struggling to address new risks pertaining to privacy and data misuse (Akanfe et al., 2020). This is because; misuse of personal data is likely to happen when using digital payments (Musyaffi et al., 2022). Therefore, digital payment service providers need to ensure that their consumers' data are not prone to leakage (Manrai et al., 2022). It should be noted that digital payments are preferred due to protection of users' transactions (Mohd Thas Thaker et al., 2023).

The consumer protection should focus on "data protection, cybersecurity and digital illiteracy" (Ferrari, 2022, p. 15). This is why; Krishna et al. (2023) propose that there should be policy development initiatives that focus on enhancing measures of addressing cybersecurity challenges. These initiatives should also focus on enhancing the governance of data accessibility. Furthermore, the policy development initiatives should focus on enhancing the licencing process and rules for digital payment service providers in order to address privacy issues (Ferrari, 2022). However, the security system of digital payments should not be too rigorous to discourage consumers from making digital transactions (Panetta et al., 2023). This is because; digital payments are meant to bring benefits to the users. Unlike cash, digital payments bring security. This is why Verdier (2024, p. 2) found that "consumers prefer to use their bank account for large value payments, their digital wallet for intermediate value payments and cash for small value payments". It can therefore be stated that digital payments create a more secure payment environment (Wu et al., 2023).

In this study, we propose that customers perceive security and privacy as benefits of adopting digital payments in Tanzania. We define enhanced perceived security and privacy based on the following statements:

- Digital payments enable an easy tracking and tracing of payments (Security1)
- There is a complete visibility (including a real-time cash flow visibility) into digital payment process (Security2)
- Digital payments automatically provide users with a credit history (Security3)
- There is a reduced risk of fraud in digital payments. The chance of counterfeiting is diminished in digital payments (Security4)
- There is an enhanced privacy, particularly customer privacy in digital payments (Security5)
- There is certainty of payment in digital payments (Security6).

With regard to perceived enhanced security and privacy, this study is therefore seeking to test the following hypotheses:

- Hypothesis 5: A positive relationship exists between perceived enhanced security and privacy and the customer's readiness to rely heavily on digital payments than cash.

- Hypothesis 6: The addition of Sufficient_policy improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, and Security6 alone.
- Hypothesis 7: The addition of Increased_collaboration improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, Security6, and Sufficient_policy alone.
- Hypothesis 8: The addition of Improved_regulatory improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, Security6, Sufficient_policy, and Increased_collaboration alone.

2.9. Cost Savings

The benefits of digital payments can be realised when challenges pertaining to digital payments are minimised. These challenges include the limited digital payment infrastructure (Setor et al., 2021); the costs and risks related to digital infrastructure (Gorshkov, 2022); perceived risks (Dzogbenuku et al., 2021); issues pertaining to safety (Panda et al., 2022); technical problems that may occur when using digital payments; and high chances of losing financial data (Musyaffi et al., 2022). The minimisation of digital payment challenges is likely to reduce the cash usage in the economy. Although "cash is particularly important for people with low digital literacy, people with a certain type of disability (people who are blind or visually impaired, with limited or no hand function, or a mild intellectual disability) and people who find it difficult to make ends meet on their income" (van der Cruijsen and Reijerink, 2024, p. 499), governments need to develop and implement appropriate mechanisms for limiting cash transactions in order to influence the adoption of digital payments (Allen et al., 2022).

A cashless economy reduces the "operating cost of the cash economy" (Raj et al., 2021, p. 422). Through digital payments, businesses are able to reduce cash-handling costs (Khando et al., 2023). Since digital payments reduce the costs of transactions (Wu et al., 2023), costs associated with using cash such as time, travel, and withdrawal fees can influence consumers to adopt digital payments (Allen, 2024). This is why, in their study, Panda et al. (2022) found that poor adoption of digital payments has greatly been influenced by issues pertaining to usage charges. Therefore, the cost-appropriate digital payment capabilities need to be created (Ng et al., 2021). Thus, policymakers should focus on reducing or eliminating digital payments cost particularly the cost that is borne by users (Rahman et al., 2020).

In this study, we propose that customers perceive the costs of using cash being higher than the costs associated with adopting digital payments in Tanzania. We define the perceived benefits in terms of costs of adopting digital payments based on the following statements:

- There is a reduction of transaction costs in digital payments. There is high possibility of having no or affordable transaction fees. This enables users to purchase cheaply (Expense1).
- The speed of digital payments is instantaneous. Digital payments are easily and quickly delivered (Expense2)
- Digital payments require easy and quick setup and can be easily managed (Expense3).
- Digital payments reduce manual work and eventually provide time and cost savings opportunities for businesses. They also allow their users to save time and resources (Expense4).

With regard to perceived benefits in terms of costs of adopting digital payments, this study is therefore seeking to test the following hypotheses:

- Hypothesis 9: A positive relationship exists between perceived benefits in terms of costs of adopting digital payments and the customer's readiness to rely heavily on digital payments than cash
- Hypothesis 10: The addition of Sufficient_policy improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, and Expense4 alone.
- Hypothesis 11: The addition of Increased_collaboration improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, Expense4, and Sufficient_policy alone.
- Hypothesis 12: The addition of Improved_regulatory improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, Expense4, Sufficient_policy, and Increased_collaboration alone.

3. METHODOLOGY

This study adopted a quantitative approach by employing a hierarchical multiple regression in testing the study hypotheses. In order to analyse the consumer perception on potential benefits of digital payments in Tanzania, it was necessary to collect data from consumer representatives recognised by the laws of Tanzania. The representatives included: the Land Transport Regulatory Authority Consumer Consultative Council (LATRA-CCC), Energy and Water Utilities Regulatory Authority Consumer Consultative Council (EWURA-CCC), Tanzania Communications Regulatory Authority Consumer Consultative Council (TCRA-CCC), and the Tanzania Civil Aviation Authority Consumer Consultative Council (TCAA-CCC).

The study's population was made up of council members, management team, employees, and members of the regional consumer committees from the four consumer consultative councils as shown in Table 1.

We decided to collect data from July 2023 to May 2024, via a questionnaire from all 368 respondents. The responses from 261 (70.92%) respondents were received as shown in Table 2.

3.1. Variables and Measurement

Under the category of Perceived Positive Customer Experience, we have the following independent variables: Customer_Exp1; Customer_Exp2; Customer_Exp3; Customer_Exp4; Customer_Exp5; Customer_Exp6; Customer_Exp7; Sufficient_policy; Increased_collaboration; and Improved_regulatory. The dependent variable is Digital_preference.

Under the category of Enhanced Security and Privacy, we have the following independent variables: Security1; Security2; Security3; Security4; Security5; Security6; Sufficient_policy;

Table 1: Population

Members/Consumer representative	LATRA CCC	EWURA CCC	TCRA CCC	TCAA CCC	Total
Council members	7	4	6	0	17
Management	2	3	3	3	11
Employees	2	0	0	2	4
RCC members	66	150	98	22	336
Total	77	157	107	27	368

Table 2: Response rate

Consumer representative	Population size	Response rate				
		Council members	Management	Employees	RCC members	Total
LATRA CCC	77	2	1	1	55	59
EWURA CCC	157	1	0	0	110	111
TCRA CCC	107	1	0	0	73	74
TCAA CCC	27	0	1	1	15	17
Total	368	4	2	2	253	261

Increased_collaboration; and Improved_regulatory. The dependent variable is Digital_preference.

Under the category of Cost Savings, we have the following independent variables: Expense1; Expense2; Expense3; Expense4; Sufficient_policy; Increased_collaboration; and Improved_regulatory. The dependent variable is Digital_preference.

All the variables are measured using the 7-point Likert scale consisting of: 1=Strongly disagree; 2=Disagree; 3=Disagree somewhat; 4=Undecided; 5=Agree somewhat; 6=Agree; 7=Strongly agree.

4. RESULTS

In analysing the consumer perception on potential benefits of digital payments in Tanzania, we firstly employed the Principal Components Analysis to determine the existing relationships between the potential benefits and their corresponding categories: positive customer experience; enhanced security and privacy; and the benefits in terms of costs of adopting digital payments. We have realised that the potential benefits have at least one correlation with another potential benefit ($r \geq 0.3$) as shown in Table 3. We also realise that the KMO values of all potential benefits are at least 0.825 indicating that there was adequacy of sampling as shown in Table 4. Furthermore, the results show that the overall KMO measure was 0.908 and the Bartlett's Test of Sphericity was statistically significant ($P < 0.001$) as shown in Table 5.

We also find that three components are retained as revealed by Tables 6 and 7. The decision to retain three components is influenced by the fact that there are only three components that have Eigenvalues >1 as shown in Table 6. Additionally, the decision is also influenced by the appearance of the Rotated Component Matrix in which each variable has only one component that loads strongly on it as shown in Table 7.

4.1. Perceived Positive Customer Experience

The results reveal that Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, and Customer_Exp7 statistically significantly predict Digital_preference as shown by Model 1 in Table 8. In Model 2, the results show that the addition of Sufficient_policy to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.022$. In Model 3, the addition of Increased_collaboration to the prediction of Digital_preference did not lead to an increase in R^2 ($\Delta R^2 = 0.000$) although the full model (Model 3) was statistically significant, $R^2 = 0.964$, $P < 0.05$. In Model 4, the addition of Improved_regulatory to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.022$ as shown in Table 8.

We therefore reveal that all the null hypotheses (Hypotheses 1, 2, 3, and 4) are rejected leading to the following conclusions: a positive relationship exists between perceived positive customer experience and the customer's readiness to rely heavily on digital payments than cash; the addition of Sufficient_policy improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, and Customer_Exp7 alone; the addition of Increased_collaboration improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, Customer_Exp7, and Sufficient_policy alone; and the addition of Improved_regulatory improves the prediction of Digital_preference over and above Customer_Exp1, Customer_Exp2, Customer_Exp3, Customer_Exp4, Customer_Exp5, Customer_Exp6, Customer_Exp7, Sufficient_policy, and Increased_collaboration alone.

4.2. Perceived Enhanced Security and Privacy

The results reveal that Security1, Security2, Security3, Security4, Security5, and Security6 statistically significantly predict Digital_preference as shown by Model 1 in Table 9. In Model 2, the results show that the addition of Sufficient_policy to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.227$. In Model 3, the addition of Increased_collaboration to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.003$. In Model 4, the addition of Improved_regulatory to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.020$ as shown in Table 9.

Table 3: Correlation matrix

Variable	Customer_ Exp1	Customer_ Exp2	Customer_ Exp3	Customer_ Exp4	Customer_ Exp5	Customer_ Exp6	Customer_ Exp7	Security 1	Security 2	Security 3	Security 4	Security 5	Security 6	Expense 1	Expense 2	Expense 3	Expense 4
Correlation																	
Customer_ Exp1	1																
Customer_ Exp2	0.673	1															
Customer_ Exp3	0.632	0.627	1														
Customer_ Exp4	0.493	0.664	0.65	1													
Customer_ Exp5	0.495	0.601	0.563	0.758	1												
Customer_ Exp6	0.455	0.54	0.534	0.561	0.542	1											
Customer_ Exp7	0.49	0.63	0.532	0.55	0.515	0.604	1										
Security1	0.454	0.448	0.506	0.489	0.531	0.563	0.56	1									
Security2	0.366	0.473	0.481	0.537	0.441	0.53	0.634	0.619	1								
Security3	0.258	0.409	0.455	0.499	0.42	0.45	0.414	0.439	0.557	1							
Security4	0.413	0.496	0.467	0.488	0.497	0.562	0.522	0.552	0.533	0.303	1						
Security5	0.459	0.405	0.449	0.439	0.457	0.365	0.333	0.366	0.366	0.323	0.42	1					
Security6	0.445	0.497	0.458	0.504	0.513	0.457	0.373	0.418	0.456	0.382	0.395	0.65	1				
Expense1	0.593	0.503	0.586	0.429	0.377	0.397	0.467	0.554	0.483	0.413	0.471	0.471	0.477	1			
Expense2	0.359	0.326	0.437	0.392	0.305	0.389	0.341	0.396	0.407	0.334	0.39	0.339	0.413	0.567	1		
Expense3	0.374	0.406	0.496	0.455	0.304	0.337	0.352	0.38	0.306	0.359	0.306	0.259	0.382	0.521	0.537	1	
Expense4	0.379	0.332	0.478	0.438	0.32	0.507	0.321	0.471	0.361	0.358	0.367	0.204	0.358	0.448	0.455	0.719	1

Table 4: Anti-image matrix

Variable	Customer_ Exp1	Customer_ Exp2	Customer_ Exp3	Customer_ Exp4	Customer_ Exp5	Customer_ Exp6	Customer_ Exp7	Security 1	Security 2	Security 3	Security 4	Security 5	Security 6	Expense 1	Expense 2	Expense 3	Expense 4
Anti-image Correlation																	
Customer_ Exp1	0.900[a]																
Customer_ Exp2	−0.393	0.911[a]															
Customer_ Exp3	−0.237	−0.074	0.966[a]														
Customer_ Exp4	0.081	−0.232	−0.201	0.910[a]													
Customer_ Exp5	−0.082	−0.042	−0.038	−0.514	0.900[a]												
Customer_ Exp6	−0.023	−0.072	−0.065	−0.026	−0.049	0.917[a]											
Customer_ Exp7	−0.035	−0.242	−0.028	0.007	−0.054	−0.266	0.922[a]										
Security1	−0.047	0.1	0	0.097	−0.236	−0.104	−0.1	0.938[a]									
Security2	0.053	0.037	−0.005	−0.172	0.171	0.037	−0.333	−0.262	0.897[a]								
Security3	0.196	−0.081	−0.091	−0.077	−0.065	−0.132	0.053	−0.029	−0.301	0.920[a]							
Security4	0.088	−0.126	0.001	0.009	−0.107	−0.193	−0.039	−0.131	−0.168	0.175	0.941[a]						
Security5	−0.155	0.13	−0.073	−0.06	−0.042	0.001	0.022	0.017	0.041	−0.066	−0.166	0.881[a]					
Security6	0.027	−0.159	0.067	0.025	−0.153	−0.103	0.119	0.022	−0.162	0.016	0.095	−0.48	0.901[a]				
Expense1	−0.26	−0.038	−0.142	0.097	0.101	0.145	−0.039	−0.209	−0.036	−0.122	−0.105	−0.121	−0.052	0.925[a]			
Expense2	−0.002	0.114	−0.018	−0.045	0.023	−0.106	0.039	0.04	−0.095	0.014	−0.08	0.002	−0.084	−0.269	0.933[a]		
Expense3	0.095	−0.127	−0.079	−0.112	0.08	0.228	−0.141	0.018	0.155	−0.064	0.043	0.004	−0.07	−0.138	−0.252	0.826[a]	
Expense4	−0.127	0.165	−0.055	−0.072	0.067	−0.33	0.164	−0.149	−0.031	−0.017	−0.055	0.156	−0.056	0.011	0.018	−0.598	0.825[a]

[a]Measures of Sampling Adequacy (MSA)

We therefore reveal that all the null hypotheses (for Hypotheses 5, 6, 7, and 8) are rejected leading to the following conclusions: a positive relationship exists between perceived enhanced security and privacy and the customer's readiness to rely heavily on digital payments than cash; the addition of Sufficient_policy improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, and Security 6 alone; the addition of Increased_collaboration improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, Security6, and Sufficient_policy alone; the addition of Improved_regulatory improves the prediction of Digital_preference over and above Security1, Security2, Security3, Security4, Security5, Security6, Sufficient_policy, and Increased_collaboration alone.

4.3. Perceived Cost Savings

The results reveal that Expense1, Expense2, Expense3, and Expense4 statistically significantly predict Digital_preference as shown by Model 1 in Table 10. In Model 2, the results show that the addition of Sufficient_policy to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.102$. In Model 3, the addition of Increased_collaboration to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.012$. In Model 4, the addition of Improved_regulatory to the prediction of Digital_preference led to a statistically significant increase in $R^2 = 0.017$ as shown in Table 10.

We therefore reveal that all the null hypotheses (for Hypotheses 9, 10, 11, and 12) are rejected leading to the following conclusions: a positive relationship exists between perceived benefits in terms of costs of adopting digital payments and the customer's readiness to rely heavily on digital payments than cash; the addition of Sufficient_policy improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, and Expense4 alone; the addition of Increased_collaboration improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, Expense4, and Sufficient_policy alone; the addition of Improved_regulatory improves the prediction of Digital_preference over and above Expense1, Expense2, Expense3, Expense4, Sufficient_policy, and Increased_collaboration alone.

Table 5: KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.908
Bartlett's Test of Sphericity	
Approx. Chi-Square	2730.337
df	136
Sig.	<0.001

5. DISCUSSION

This study finds that there are several perceived benefits that influence the preference of digital payments among consumers in Tanzania. We find that the adoption of digital payments in Tanzania is driven by the expectation of a positive customer experience. The findings are supported by Sahi et al. (2021) who reveal the influence of customer satisfaction on digital payment adoption. Customers believe that digital payments provide them with convenience particularly the ability to make transactions from anywhere and to support remote and hybrid work environments. Their perception is supported by Ramayanti et al. (2024) and Musyaffi et al. (2022) who argue that digital payments enable consumers to make financial transactions anytime and anywhere. Their decision to adopt digital payments is also fuelled by an increased accuracy, scalability, and ability in reaching a larger audience. Additionally, the provision of more distribution channels and payment options accelerate their adoption decisions. For example, due to advancement in digital payment technologies, customers have a wide range of digital payments such as unified payment interfaces, e-wallets, and mobile payments (Modgil et al., 2022). We argue that the investment in research and development is of paramount importance in understanding and developing workable solutions that forge a positive customer experience.

We also reveal that enhanced security and privacy is a perceived benefit that increases the preference of digital payments in Tanzania. These findings are consistent with those by Rahman

Table 6: Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8.390	49.354	49.354	8.390	49.354	49.354	4.539	26.698	26.698
2	1.344	7.907	57.261	1.344	7.907	57.261	3.415	20.087	46.785
3	1.078	6.342	63.603	1.078	6.342	63.603	2.859	16.818	63.603
4	0.917	5.392	68.995						
5	0.824	4.849	73.844						
6	0.699	4.111	77.955						
7	0.546	3.212	81.167						
8	0.503	2.958	84.125						
9	0.448	2.637	86.762						
10	0.432	2.540	89.302						
11	0.361	2.121	91.423						
12	0.341	2.003	93.426						
13	0.288	1.693	95.119						
14	0.256	1.508	96.627						
15	0.228	1.343	97.969						
16	0.177	1.040	99.010						
17	0.168	0.990	100.000						

Extraction Method: Principal Component Analysis

Table 7: Rotated component matrix[a]

Variable	Component		
	1	2	3
Security5	0.802		
Security2	0.767		
Security6	0.702		
Security1	0.681		
Security4	0.613		
Security3	0.596		
Customer_Exp7		0.76	
Customer_Exp6		0.716	
Customer_Exp1		0.677	
Customer_Exp4		0.616	
Customer_Exp5		0.598	
Customer_Exp2		0.585	
Customer_Exp3		0.523	
Expense3			0.846
Expense4			0.799
Expense2			0.681
Expense1			0.562

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. [a]Rotation converged in 6 iterations

et al. (2020), Dzogbenuku et al. (2021), Gorshkov (2022), Panda et al. (2022), and Krishna et al. (2023). In these studies it was realised that security matters influence the decisions to adopt digital payments. As it was found in this study, the customers' decisions to adopt digital payments are influenced by the fact that customers perceive that there is certainty of payments, complete visibility, an easy tracking and tracing of payments, the availability of credit history, and enhanced customer privacy once they adopt digital payments. The findings are consistent with Ramayanti et al. (2024) who reveal that digital payments enable consumers to control their financial information and transactions. Mützel (2021) adds that digital payment apps help customers track their spending. They also enable businesses to easily obtain trading information of their customers (Wu et al., 2023). It should be concluded that digital payments help financial institutions, businesses, and governments to collect useful data (Raya and Vargas, 2022).

Furthermore, it is also found that the consumer perception on security and privacy also dwells on the belief that digital payments

Table 8: Hierarchical multiple regression - Perceived positive customer experience

Variable	Digital_preference							
	Model 1		Model 2		Model 3		Model 4	
	B	β	B	β	B	β	B	β
Constant	6.106***		8.091***		8.062***		9.773***	
Customer_Exp1	0.122***	0.168	0.053***	0.073	0.053***	0.072	0.022*	0.03
Customer_Exp2	0.374***	0.527	0.190***	0.268	0.190***	0.268	0.080***	0.112
Customer_Exp3	0.214***	0.9	0.136***	0.571	0.135***	0.567	0.056***	0.235
Customer_Exp4	0.214***	0.394	0.154***	0.283	0.156***	0.286	0.067***	0.123
Customer_Exp5	0.163***	0.115	−0.199***	−0.139	−0.204***	−0.143	−0.655***	−0.46
Customer_Exp6	0.109***	0.19	0.056***	0.098	0.057***	0.1	0.021*	0.037
Customer_Exp7	0.280***	0.331	0.537***	0.634	0.540***	0.638	0.807***	0.954
Sufficient_policy			−0.397***	−0.457	−0.398***	−0.458	−0.011	−0.012
Increased_collaboration					0.007*	0.029	0	0.002
Improved_regulatory							−0.736***	−0.846
R^2	0.942		0.964		0.964		0.986	
F	582.307***		831.975***		753.648***		1725.591***	
ΔR^2	0.942		0.022		0		0.022	
ΔF	582.307***		151.699***		5.598*		374.693***	

N=261. *P<0.05, **P<0.01, ***P<0.001

Table 9: Hierarchical multiple regression - perceived enhanced security and privacy

Variable	Digital_preference							
	Model 1		Model 2		Model 3		Model 4	
	B	β	B	β	B	β	B	β
Constant	6.132***		9.612***		9.551***		9.764***	
Security1	0.213**	0.312	0.136***	0.199	0.135***	0.197	0.095**	0.139
Security2	0.107**	0.454	0.130***	0.551	0.125***	0.532	0.106***	0.451
Security3	0.173**	0.35	0.097**	0.196	0.086*	0.174	0.059	0.119
Security4	0.365***	0.619	0.131***	0.221	0.128***	0.216	0.097***	0.164
Security5	0.343***	1.112	0.190***	0.616	0.187***	0.605	0.155***	0.502
Security6	0.322***	0.751	0.350***	0.816	0.350***	0.816	0.343***	0.801
Sufficient_policy			−0.593***	−0.682	−0.596***	−0.686	−0.112	−0.129
Increased_collaboration					0.014*	0.051	0.011*	0.04
Improved_regulatory							−0.520***	−0.598
R^2	0.663		0.89		0.893		0.913	
F	83.293***		293.635***		262.582***		292.309***	
ΔR^2	0.663		0.227		0.003		0.02	
ΔF	83.293***		524.896***		5.846*		57.676***	

N=261. *P<0.05, **P<0.01, ***P<0.001

Table 10: Hierarchical multiple regression - Perceived cost savings

Digital_preference								
Variable	Model 1		Model 2		Model 3		Model 4	
	B	β	B	β	B	β	B	β
Constant	6.123***		8.284***		8.181***		8.308***	
Expense1	0.288***	0.524	0.378***	0.688	0.394***	0.716	0.376***	0.684
Expense2	0.129***	0.503	0.195***	0.761	0.202***	0.791	0.194***	0.759
Expense3	0.403***	0.679	0.306***	0.517	0.307***	0.518	0.296***	0.499
Expense4	0.408***	1.268	0.380***	1.180	0.384***	1.192	0.369***	1.145
Sufficient_policy			−0.363***	−0.424	−0.379***	−0.443	−0.182*	−0.212
Increased_collaboration					0.034**	0.110	0.032**	0.103
Improved_regulatory							−0.217***	−0.268
R^2	0.493		0.595		0.607		0.624	
F	62.135***		75.014***		65.405***		60.039***	
ΔR^2	0.493		0.102		0.012		0.017	
ΔF	62.135***		64.695***		7.620**		11.549***	

N=261. *P<0.05, **P<0.01, ***P<0.001

reduce the risk of fraud. In this regard, we argue that digital payment service providers have to introduce mechanisms that address security concerns particularly the detection and prevention of scams and hackings (Rahman et al., 2020). Moreover, the government needs to develop and implement plans that seek to protect digital payment consumers and prevent fraud (Allen et al., 2022). We argue that the commitment to increase security and privacy in digital payments should be shared by practitioners and policymakers from both public and private sectors, financial institutions, enterprises, service providers, as well as developers of digital payment systems and solutions. For example, Ferrari (2022) recommends that relevant stakeholders should be involved in developing data protection standards of digital payment systems.

This study also reveals that customers perceive the costs of adopting digital payments as being smaller than those associated with cash usage. They believe that once they adopt digital payments, there will be reduction of transaction costs and other related fees. For example, in their study, Wu et al. (2023) found that digital payments increased the borrowing efficiency particularly the reduction of transaction costs during borrowing. They also believe in how easily and quickly can digital payments be setup, delivered, and managed. These findings are supported by Anaza et al. (2022), and Raj et al. (2021) who reveal that digital payments increase the ease of transactions. They also increase transaction speed (Wu, et al., 2023). In this regard, they save both time and cost. For example, Mützel (2021) found that digital payment apps help customers save time. Likewise, in their study, Yang et al. (2021) found that e-wallets can help users save time and cost. Furthermore, Modgil et al. (2022) found that digital payment methods play a vital role in enabling the smooth flow of funds in e-commerce. Their findings are also supported by Wu et al. (2023) who conclude that digital payments hasten the flow of funds.

We also reveal that the customer preference in digital payments is also influenced by their positive perception on the ability of digital payments to reduce manual work and eventually increase efficiency. We argue that customers prefer affordable advanced customer service. Businesses are also interested in the reduction of installation and operational costs. This is supported by Khando et al. (2023) who reveal that digital payments relieve enterprises from the costs associated with cash. Likewise, in their study, Ramayanti et al. (2024) found that digital payments enable financial institutions such as banks to reduce operational costs. Mechanisms that seek to reduce these costs should be prioritised in order to influence the digital payment preference of both businesses and customers. To a great extent, businesses and customers are key players that can influence a widespread adoption of digital payments in any economy.

We also reveal that the preference of digital payments in Tanzania is heavily influenced by the perception that digital payments are beneficial because they are always improved by the government through sufficient policies, forged collaborations among digital payment stakeholders, and through an effective regulatory framework. In this regard, the government support in enhancing the digital payment ecosystem should continue focusing on creating favourable policies that seek to improve the relevance of digital payments. These efforts need the continued support of key players such as the financial institutions, policymakers, enterprises, service providers, innovators, and the customers. As supported by Niankara (2023), digital payment stakeholders such as the government, industry, academia, and society, should forge dynamic collaborations in order to promote innovations in digital payment systems. These innovations should reflect the characteristics of all sectors of the economy. This is why Sam et al. (2023) recommend that being intertwined as an ecosystem, digital payments should be analysed by considering a wide range of businesses, including those operating outside banking, finance and technology sectors.

6. CONCLUSION

We argue that the government of Tanzania has a role to play in creating favourable conditions that attract more investment in the digital payment ecosystem. Such investment increases the chances for relevant digital payment solutions to thrive and eventually deliver outstanding customer experiences. Policymakers have also a role to play in the development of appealing policies that stimulate innovations in digital payments across sectors.

We also argue that mechanisms to increase security and privacy in digital payments require multifaceted approaches. These include

the enactment of relevant laws, rules, and regulations that govern security and privacy issues in digital payments. These mechanisms should also involve the development of sound policies that seek to enhance security and privacy in order to instil trust among users through consistent actions. Additionally, the successful implementation of these mechanisms depends on the investment in appropriate digital payment infrastructures, technologies, systems, and suitable solutions.

The efforts and commitments in developing policies, and solutions that help in reducing or eliminating transaction costs and other related fees, should be employed by the government in order to discourage cash usage among consumers. Specifically, the government of Tanzania needs to employ strategies that seek to reduce or eliminate the transaction fees in digital payments particularly in mobile payments and banks in order to attract and benefit a larger population in both urban and rural areas. These policies should also focus on supporting innovators, businesses, service providers, and developers of appealing digital payment solutions in stimulating the development of low cost but advanced systems.

This study also argues that the policy development process pertaining to the promotion of digital payments in Tanzania needs to involve key players in the digital payment ecosystem in order to come up with policies that are intertwined with their needs, preferences, and interests. Additionally, the policy development process as well as the improvement of existing policies, rules, regulations, and laws governing digital payments, should be carried out regularly in order to accommodate and embrace the changes brought by the advancement in the digital payment technologies.

The limitation of this study dwells on the fact that it only relied on perceptions of consumer representatives instead of those of individual consumers. The study argues that the perceptions of the representatives and those of individual customers differ, hence different results. We propose that future research may focus on the perceptions of individual consumers from specific industries.

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